REMARKS

I. Introduction

Upon entry of the present amendment, claims 1-11 will remain pending in this application. Claims 1 and 10 have been amended to more clearly define the drive motor being claimed. Based on the following remarks, Applicants respectfully request reconsideration and allowance of the pending claims.

II. 35 U.S.C. § 103

The Examiner has rejected claims 1-11 under 35 U.S.C. § 103(a) as being unpatentable over Davidsson (EP Patent Application No. EP 0905334) in view of Koehl (U.S. Patent Application No. 2005/0123408). The Examiner admits that Davidsson fails to obtain a predetermined threshold value and in the event where the threshold value is exceeded, trigger a procedure, but submits that Koehl discloses a predetermined threshold value and triggering a procedure. The Examiner's position is that it would have been obvious to combine Davidsson's automatic cleaning device with Koehl's threshold value in order to arrive at the claimed invention. Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

First, the cited references are not properly combinable. Davidsson relates to an automatic pool cleaner, and Koehl relates to a pump control system for a residential water system. The Examiner has not articulated why one or ordinary skill in the pool cleaner art would look to incorporate steps from a residential water system in order to improve the underwater motion of a pool cleaner and prevent it from being stopped by an obstacle. More specifically, Davidsson relates to pool cleaners and seeks to provide a pool cleaner designed

to traverse the bottom and sides of the pool in accordance with a pre-determined pattern and to clean the surfaces by counter-rotating brush rollers. When the brush rollers encounter an obstacle, the pool drive motors are reversed so that the pool cleaner travels away from the obstacle. *See* Davidsson, claims 1 and 3. By contrast, the Koehl application seeks to provide an underwater pump system (e.g., a pump used for an irrigation system, a water distribution system connected to a municipal water supply, or a pool or spa system), and it seeks to provide a pressure-boosting feature. For example, the Koehl system may be use to increase the water pressure of sprinklers, residential water outlets (shower heads, faucets, etc.), or spa jets. *See* Koehl ¶¶ [0026], [0028]. These are very different considerations than those addressed by the Davidsson reference.

In order to determine whether a prior reference is non-analogous and thus not relevant in determining obviousness, it must be determined (1) whether the reference is "within the field of the inventor's endeavor," and (2) if not, whether the reference is "reasonably pertinent to the particular problem with which the inventor was involved." See e.g., *In re Deminski*, 706 F.2d 436 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656 (Fed. Cir. 1992).

Regarding (1), it is fairly clear that pool cleaners and pumps connected to water distribution systems used to increase pressure of the water output are most definitely in different fields of endeavor from one another. One seeking to determine the best way to develop a pool cleaner and cause it to reverse upon contact with an obstacle would certainly not look to systems designed to increase the water pressure of sprinkler systems, and vice versa.

Regarding (2), a reference in a different field from that of applicant's endeavor may

only be reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his or her invention as a whole. *See* MPEP 2141.01(a); *In re Clay*, 966 F.2d 656 (Fed. Cir. 1992). In this instance, there is no reason articulated in the rejection, nor any reason understandable to Applicants, why one of ordinary skill in the art designing a pool cleaner would look to the water pressure increasing art in order to improve the obstacle-avoiding ability of a pool cleaner. The problems of increasing water pressure are not related to the problems encountered by the Davidsson inventors or the present inventors.

However, the Examiner asserts that it would have been obvious to utilize the Koehl concepts of checking for jamming by comparing a certain current value against a threshold current value (*see* Koehl, ¶ [0086]) in connection with pool cleaners--without providing any teaching or suggestion about why such a combination can be made. Accordingly, Applicants submit that it would not have been obvious to one having ordinary skill in the art of pool cleaners at the time the invention was made to consider water pressure increasing art.

Moreover, even if the references were found to be properly combinable, the claimed invention would not result. Neither reference nor their combination teaches an automatic cleaning device wherein a value representative of the load torque of at least one electric drive motor is measured periodically. The device described by the Davidsson application does not measure torque load periodically, as suggested by the Examiner. The Davidsson device simply automatically travels forward "until one of the rotating brushes encounters a wall or some other obstacle in the pool. This increases the current in the particular brush drive

motor which, following a delay, stops the track belt motors. The motors then restart in the reverse direction…." *See* Davidsson, col. 1, line 52- col. 2, line 3.

There is thus (a) no discussion of measuring the torque load *periodically* and (b) no discussion of measuring a torque load of a *drive motor* in Davidsson. The Davidsson device does not take periodic measurements, nor does it ever measure a torque load of a drive motor. It simply notes a increase in current in a cleaning ***brush drive motor***, not a ***driving unit for transmitting movement and driving of the chassis on the submerged surface***. Cleaning brush drive motors are not driving units. And only sensing increased current in a brush drive motor has a serious drawback that Applicants have solved. When the Davidsson apparatus enters into contact with an obstacle, such as a ladder, which stops the ***driving motors*** without stopping the ***brushes***, the Davidsson apparatus will not detect that the device has been blocked. It will remain blocked and the driving motors may deteriorate or break. Applicants' invention solves this problem.

There is likewise no teaching or suggestion in Koehl of periodic measuring of torque load of a drive motor. Koehl concerns a pump control system including a pump controller that can perform a self-calibration procedure and provide precise motor speed control. It does not teach or suggest periodic measurement of an electric variable representative of the load torque of a driving motor.

Additionally, neither reference nor their combination teaches comparing load torque values at predetermined thresholds, and in the event that the threshold value is exceeded, triggering a saving procedure. The Examiner admits that the device described by the Davidsson application does not using a predetermined threshold value for comparing the

torque load measurement obtained, but submits that Koehl provides this missing step. However, Koehl only uses fault detection on its pump motors, not on driving motors. As such, even if the detection of Koehl is applied to the Davidsson device, the threshold check would be against the pump motors, not drive motors--and at most, against the brush drive motors, not the drive motor arranged to transmit motor movement to at least part of the units for driving of the chassis on the submerged surface.

As an aside, the Koehl device also fails to conduct a simple comparison. Instead, the Koehl device uses a more complicated procedure to determine whether a problem has occurred. Specifically, the Koehl system seeks to determine whether a low-speed jamming fault condition has occurred by sending a first bus current value of the DC bus line and sensing the motor speed. The controller then determines whether the first bus current value is greater than a programmed threshold and whether the speed of the motor is less than a motor speed low threshold. If the first bus current value is greater than a threshold and the speed of the motor is lower than a motor speed threshold, then the system indicates that a jam has occurred. *See* Koehl, ¶ [0086].

There is no simply discussion in Koehl of measuring the torque load periodically and comparing those values to a predetermined threshold as claimed. Instead, Koehl seeks to do a more complicated comparison against multiple variable and multiple thresholds, rather than simply applying a comparison against a torque load. This more complicated check system would not be useful in connection with an automatic pool cleaner. As such, even if combined, the cited references do not teach or discloses the claimed invention.

CONCLUSION

For at least the above reasons, Applicants respectfully request allowance of the pending claims and issuance of a patent containing these claims in due course. If the Examiner believes there are any issues that can be resolved via a telephone conference, or if there are any informalities that can be corrected by an Examiner's amendment, he is invited to contact the undersigned.

Respectfully submitted,

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